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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,157	05/09/2001	Yasuo Suzuki	35.C15343	2510

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EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,157

Applicant(s)

SUZUKI ET AL.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 6 should be designated by a legend such as --PRIOR ART-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima (U.S. 6,052,211).

Nakajima discloses an image forming apparatus comprising a light source (11-14), deflecting means (polygon mirror 15) for deflecting light emitted from said light source by a rotation, a mirror (24-27) for deflecting the light deflected by said deflecting means,

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an image bearing body (28-31) to which the light deflected by said mirror is irradiated; and a lens (18-21) for image-forming the light deflected by said deflecting means onto said image bearing body, wherein a plurality of lights (11-14) are deflected by said one deflecting means and only said one mirror exists in an optical path along which said one light deflected by said deflecting means reaches said image bearing body (each of the plural light beams 1-4 being deflected by one of the mirrors 24-27 before reaching each respective photosensitive drums 28-31). With regard to claims 11, 13, Nakajima also teaches each of the image-forming lenses (18-21) being provided on a downstream side of the corresponding mirrors (24-27).

As to claims 2-10, Nakajima further teaches:

- the mirror and the image bearing body being provided plurally, and the mirror and the image bearing body being provided for each of said plurality of lights deflected by the deflecting means (Fig. 4),
- an arrangement pitch of said mirrors and an arrangement pitch of said image bearing bodies being almost the same (Fig. 4),
- said deflecting means having one polygon mirror (15, Fig. 4), said polygon mirror deflecting [at least] two lights, and said mirror being provided for each of said two deflected lights,
- an optical box (housing unit 10) for containing at least said deflecting means and said two mirrors,
- two said deflecting means (115a, 115b, Figs. 6A, 6B) being provided,

- said mirror and said image bearing body are provided plurally, said deflecting means having two polygon mirrors (115a, 115b), each of said polygon mirrors deflecting two lights, and said mirror and said image bearing body being provided for each of said four deflected lights (Fig. 6A),
- an arrangement pitch of said mirrors (26 and 27) each of which is provided for each of said two lights deflected by one said polygon mirror (115a) being almost the same as an arrangement pitch of said Image bearing bodies (29 and 30), and an arrangement pitch of said mirrors (24 and 25) each of which is provided for each of said two lights (1 and 4) deflected by the other polygon mirror (115b) being almost three times as large as the arrangement pitch of said image bearing bodies (24 and 25),
- an optical box (10) for containing at least said deflecting means and said four mirrors,
- said mirror (e.g., deflecting mirror 24) being provided in the optical path along which the light deflected by said deflecting means reaches said lens (e.g., 19).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima in view of Koide (U.S. 5,251,055).

Nakajima discloses all the basic limitations of the claimed invention except for the lens correcting an inclination of the reflecting surface of the polygon mirror.

Regardless, the scanning lens is well known in the art of printing for its characteristic of not only for scanning the light beam in a uniform speed but also for correcting the inclination of the reflecting plane of the polygon mirror. Koide, for example, discloses an image forming apparatus of a similar structure as that of Nakajima, which includes a plurality of light beams being deflected by a single polygon mirror (27, Fig. 4), deflecting mirrors (51-54), scanning lens units, and corresponding image bearing bodies, in which the scanning lenses are used to correct the inclination of the deflecting surfaces of the polygon mirror (col. 6, lines 6-15).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Nakajima with the aforementioned teaching of Koide since it is known in the printing art that the scanning lenses are provided with such particular characteristics.

Contact Information

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamaguchi et al. (U.S. 5,801,746) discloses an image forming apparatus, which includes a plurality of light beams being deflected by a single polygon mirror, before being deflected by corresponding deflecting mirrors to expose respective

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image bearing bodies. Takeshita et al. (U.S. 6,088,146) also discloses an image forming apparatus having similar structure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on M-F (9:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

June 15, 2002